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This month's cover photo is of Madison County's Hogback Bridge—one of the relatively few covered bridges remaining in the state. Located a few miles northwest of Winterset, the bridge was photographed by Associate Editor Carol Kuetemeyer.

in this issue

chat with the editors

"To farm people especially," say the authors of the article beginning on page 9, "the word 'corporation' may imply large-scale farming and 'outside interests' -- considered particular threats to the traditional family farm." They point out that incorporation essentially is merely an alternative form of business organization -- one that's available to farm families as well as others.

The authors explain in their article that, in some cases, the corporate form of business may offer a tool for preserving and strengthening the family farm. But they suggest a careful weighing of the advantages and disadvantages before making any decision.

It should be emphasized that the authors are not "recommending" the wholesale incorporation of family farms. Rather, because of increasing interest and inquiries, their article was written for the purpose of presenting factual information about this form of business structure.

The first question for an individual farm family is whether or not the corporate form of business offers a better tool than the present form for their particular situation -- considering all facts, advantages and disadvantages.

July Iowa Farm Science Reprints

(available about mid-month)

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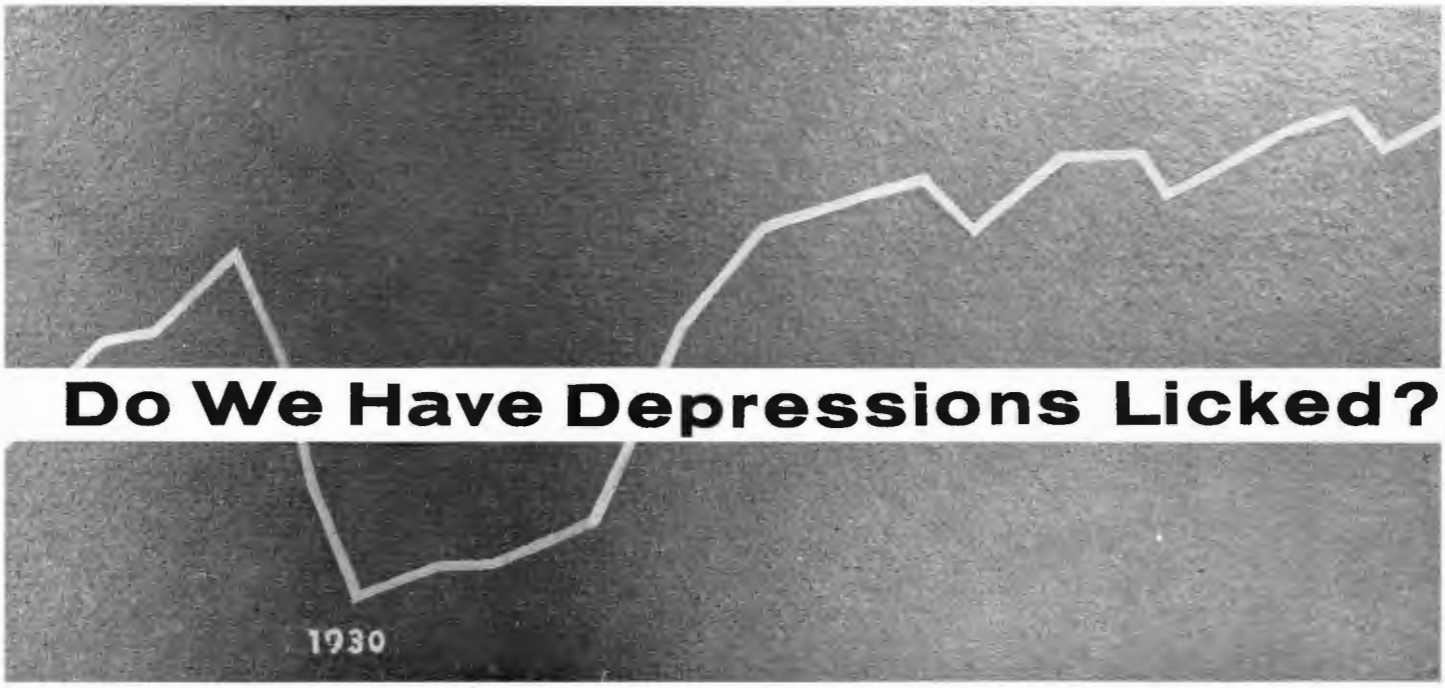

Do We Have Depressions Licked?

We've had three economic recessions during the past 11 years, but our built-in stabilizers and buffers have worked rather well. Though we can't be certain, it looks as though another catastrophic depression such as that of the 1930's is unlikely to re-occur in the years ahead.

by Karl A. Fox

FARM FAMILIES have a two-fold interest in the nonfarm economy. It is the major source of demand for farm products and also the source of employment for many of our farm youth and others seeking nonfarm employment. Thus, farm people have a very direct interest in the well-being and stability of the nonfarm economy. For rather than depressions and recessions being "farm led and farm fed," the evidence points to the reverse.

The Great Depression of the 1930's bore with it severe consequences for farm and urban families alike. Thus, economic instability in the nonfarm economy affects and is of concern to farm families. How does it affect agriculture?

First, we need to correct some widely held notions about the extent of the variations in nonfarm employment and business activity. Much of our continuing preoccupation with economic stability stems from that one catastrophic experience—the depression of the 1930's. From 1929 to 1932-33, the real gross national product (the value of all goods and services produced) of our economy slumped 30 percent. Industrial production skidded 50 percent, and total employment dropped 20 percent. At the depth of this depression, a fourth of our entire labor force was idle.

Then, in every year from 1931 through 1940, unemployment averaged at least 14 percent of the labor force. The defense preparations of 1940-41 ended this "decade of idleness." And they were followed by the super-activity of World War II. From 1942 through 1957, there was not as much as 6-percent unemployment in any one year. The average during 1948-57 was about 4 percent —not much more than the minimum rate necessary to permit the normal movement of workers from one job to another.

Not Likely Again . . .

Economists and many business leaders and legislators learned enough as a result of the great depression that nothing of a similar nature or magnitude is likely to recur. It was an expensive lesson. But out of it came such things as recommendations for counter-cyclical fiscal policies; the adoption of social security legislation which acts to some extent as a built-in stabilizer against recession; and the passage of the Employment Act of 1946 which, among other things, created a Council of Economic Advisers in the executive Office of the President and a Joint Economic Committee of Congress.

Because of definite structural changes in our economy and increased knowledge and specific national stabilization policies, the experience of the 1930's seems largely irrelevant to the current situation. In the past 11 years,

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we've seen three recessions and two complete recoveries. We're now in the midst of a third recovery.

Since 1948. . .

The three economic recessions since 1948 have been concentrated in the durable goods manufacturing industries. And our impressions of the severity of these recessions are typically colored by the behavior of a few industries, such as automobiles and steel.

In these recessions during 1948-58, the average drop in employment from peak to trough in durable goods manufacturing industries was 13.2 percent. In mining, the average decline was 9 percent. Nondurable manufacturing industries showed an average dip of 5.5 percent, while the average was 5.9 percent in transportation and public utilities.

But the decline in wholesale and retail trade averaged only 1.6 percent. And employment in such categories as finance, insurance, and state, local and federal government actually increased from 0.1 to 1.9 percent.

The average decline in *total nonfarm employment* in the three recessions was only 4 percent. And, if we allow for the relatively stable employment of farm operators, other farm workers, professional workers and nonfarm business operators, the average decline in *total civilian employment* during the three recessions was only about 3.1 percent. Thus, the severity of the employment drops in each of the recent recessions was less than a fifth as great as in the 1929-32 depression.

Why Less Severe?

A recession in nonfarm employment cuts the incomes of the workers then unemployed. Before 1933, the purchasing power of unemployed workers would fall almost to zero. When they shifted from meat and eggs to flour and beans under such emergencies, the demand for livestock products would shrink, and prices received by farmers would drop sharply.

The effects of built-in stabilizers, such as unemployment compensation and a progressive income tax structure, have changed this picture to a considerable extent.

About a tenth of the total demand for United States farm products comes from foreign countries. The rest of the commercial demand comes from domestic sources. And at least 90 percent of this domestic demand gets into the farm economy through the stream of consumer spending for nondurable goods—food, tobacco, cotton and woolen clothing, household textiles, leather shoes and certain other products. Less than 10 percent of the domestic demand for farm products comes through such channels as business investment and government purchase (for other than price-support purposes).

The table shows how disposable personal income and consumer spending are protected from the effects of declines in the gross national product by various "buffers" and "built-in stabilizers" which might be likened to the shock absorbers and springs of a car.

Changes in corporate profits and in government income transfer payments (particularly unemployment compensation) have offset more than half of the decline in the gross national product in each of the three recessions shown. As a result, personal income before taxes—income actually allocated to individuals — declined only 5.5 billion dollars in the 1948 recession and less than that in the 1953-54 and 1957-58 recessions.

The progressive structure of personal income tax rates has had a further buffering action—equivalent to 20 percent or more of the decline in personal income. (The drop in personal taxes during 1953-54 is partly the result of a cut in the general level of federal income tax rates in each income bracket.) So disposable personal income after taxes declined by less than 4 billion dollars in two of the recent recessions and actually increased by 2 billion during the 1953-54 recession.

Consumers vary their rate of saving under different circumstances. And they usually do so in such a way as to further insulate the stream of personal consumption spending from the effects of a decline in disposable income. In two of the recent recessions, personal consumption spending actually rose a trifle. And in the most recent one, it declined by less than 1 percent.

The most surprising discovery is that, during 1948-58, the American corporation acted as the most important shock absorber between variations in the gross national product and differences in the personal income stream! This buffering role of the corporation wasn't assigned to it by Act of Congress, nor was it consciously

Effects of buffers and built-in stabilizers between gross national product and personal consumption spending during three economic recessions, 1948-58.

	Changes from peak to trough (billions of dollars)		
	1948-49	1953-54	1957-58
Gross national product at peak	265.9	368.8	445.6
Less gross national product at trough	256.4	358.9	425.8
Equals:			
Change in gross national product	— 9.5	—9.9	—19.8
Less change in depreciation, indirect business taxes[a]	+ 2.3	—0.7	— 1.7
Equals:			
Change in national income	—11.8	—9.3[b]	—18.1
Less change in corporate profits, government transfer payments[c]	— 6.3	—8.2	—13.6
Equals:			
Change in personal income	— 5.5	—1.1	— 4.5
Less change in personal taxes[d]	— 1.7	—3.1[e]	— 0.8
Equals:			
Change in disposable personal income	— 3.8	+2.0	— 3.7
Less change in personal savings	— 4.1	—1.3	— 1.6
Equals:			
Change in personal consumption expenditures	+ 0.3	+3.2[b]	— 2.1

[a]Also involves three other minor items.
[b]Slight discrepancies due to rounding.
[c]Also includes six other relatively stable items.
[d]Also includes "personal nontax payments," a relatively small item.
[e]Decline partly attributable to a reduction in federal income tax *rates*.
Source: *Survey of Current Business*, July 1958, pp. 13-15; *Economic Indicators*, Sept. 1958.

developed as a public service by the corporations. Apparently it simply evolved, step by step, out of the cost structure of large-scale enterprises, the nature of the investment market and corporate attitudes toward the financing of new plant and equipment.

Taxes on corporate net incomes average about 50 percent. The reduction in corporate tax payments ranged from 2.6 to 5.9 billion dollars in the last three recessions. And corporate profits after taxes also declined by from 3 billion to more than 6 billion dollars in each. But corporate dividend payments showed reductions of only from 0.2 to 0.4 billion dollars from a basic level that now exceeds 12 billion dollars a year. To maintain dividends, corporations have accepted sharp fluctuations in undistributed profits.

A "Smooth Ride" . . .

The effect of these various built-in stabilizers and buffers has been to give the American consumer—and all parts of the economy dependent on personal income expenditures—an incredibly smooth ride during the past decade. It's doubtful that any economist in the late 1930's or early 1940's would have hoped for such a high level of performance or would have accepted the responsibility for achieving it.

It may be, of course, that events (some in the international arena) have fallen in a time pattern particularly favorable to domestic economic stability. And the road ahead may be rougher, at least in spots, than the one we've just traveled in 1948-58.

Farm Effects . . .

Now let's turn to the effects of economic instability on farm prices and incomes during 1948-58. Food products make up something like 80 percent of the total domestic use of farm products in the United States. And changes in disposable personal income is the economic factor that generally brings about changes in the demand for food.

Generally the degree of instability in the nonfarm economy during 1948-58 was small. The buffering action of built-in stabilizers and corporate dividend policies was large. The result has been that recessions in consumer income have been almost negligible.

The Future . . .

Somewhat larger fluctuations in gross national product are possible, but much deeper recessions are improbable. And the buffers and built-in stabilizers would greatly mitigate them if they commenced—nor have the means now available for deliberate intervention been overtaxed.

It's *conceivable* that our economic defenses have held because they haven't been seriously attacked. There have been other periods of 8-10 years in which only little cycles have occurred, to be followed later by big ones. But the new features built into the economy and national policy since the 1930's aren't imaginary or illusory! They've worked rather well, and, in most cases, we understand *why* they've worked. This promises well for our ability to meet future challenges to economic stability.

Job Opportunities . . .

The effects of economic instability on labor mobility, off-farm migration and job opportunities for farm people are less conclusive. Does *any* recession, for example, imply that *no* farm people can find jobs in the nonfarm economy? If not, then the problem is to discover how much the probability of young farm people obtaining nonfarm jobs within reasonable lengths of time is reduced by recessions of particular severities.

We've noted that employment in government, service industries and in finance, insurance and real estate actually increased in each of the three recent recessions and that declines in total civilian employment averaged only about 3 percent. Despite an average decline of 13.2 percent in employment in durable goods manufacturing industries, there appeared to be good prospects for employment in other lines.

Furthermore, wage rates in durable goods industries are high relative to those in some of the activities that expanded during the recessions or that contracted only slightly as did wholesale and retail trade. And this latter category included more workers than did durable manufacturing.

Unemployment compensation for workers in durable goods manufacturing is high enough to act as a "support price" and to keep the workers laid off by car and steel manufacturers, for example, out of the labor market for several weeks or even months until their particular industries revive. Government unemployment compensation is supplemented in some industries by negotiated supplemental unemployment benefit plans.

To the extent that surplus labor from manufacturing industries is "stored" in this fashion, opportunities for farm people to move into nonmanufacturing occupations are only slightly impaired by a recession. And nonmanufacturing occupations account for more than two-thirds of total nonfarm employment.

In the 1953-54 recession, the decline in total nonfarm employment was 3.7 percent for the nation as a whole—but ranged from 7 percent in the heavily industrialized East-North-Central Region to only 1.9 percent in the West-South-Central Region. The 1953-54 recession, like our other recent recessions, was concentrated in the durable goods manufacturing industries. Thus, 84 percent of the variation among the regions in the recession decline in employment was associated with the percentage of nonfarm workers employed in durable goods industries at the beginning of the recession.

Other studies also show considerable variation in unemployment conditions during the recession among the different metropolitan areas or labor markets around the nation. And the implication of these diverse patterns also is that there must be considerable regional and local variation in employment opportunities for farm people as well as others during the course of a "national average" recession.

What Possibilities For Oil Crops?

Some of our acreage of surplus crops might be shifted to new oilseed crops if they can be profitably grown and marketed. Let's look at some of these crops and at the fats and oils situation to see what the possibilities are.

by Lionel K. Arnold

ONE OF the possible methods that have been suggested for improving the farm surplus situation is to shift some of the present surplus crop acreage to new crops. Any new crops to be thus substituted, however, must be those which can be raised and marketed to yield reasonable profits to producers. And the new crops must not substitute for some present crop so as to decrease the profitable market for it.

Various oilseeds have been proposed as desirable new crops. The appeal of these has been heightened by the remarkable increase in soybean acreage in the Corn Belt over the past 30 years. Another crop or group of crops requiring an equivalent to the soybean acreage would be a considerable help in replacing part of our surplus crop acreage. To what extent might this be feasible? Let's look briefly at the development and uses of fats and oils and at some of the individual oilseed possibilities.

Early Sources, Uses . . .

Primitive man must first have come in contact with edible fats as a part of the wild animals he killed for food. After a time, he domesticated certain animals and used them for food. This gave him two types of fat—the body fat such as lard or tallow and the milk fat used as cream and later as butter. For a long time, these were the only fats used by man in the temperate and arctic zones. In the subtropical and tropical regions, man found tree oils such as olive oil, palm oil and coconut oil. The use of these goes back pretty much at least to the beginning of written history.

The use of annual crops as sources of fats and oils for food was a later development. Probably the earliest of these oils were ones such as sesame oil and soybean oil, produced and used in the Asiatic countries. In the European countries, linseed oil, used as a drying oil, preceded any food oil development. The traditional food fats among the northern Europeans and most of the early Americans were lard and butter.

Later Developments . . .

The real beginning of the vegetable oil industry in the United States came after the big increase in cotton production following the invention of the cotton gin in 1793. As cotton developed into a major southern crop, a large amount of cottonseed was produced for which there was little use. Some attempts were made to use it as fertilizer, but its value for this purpose was rather low.

The oil could be pressed out, but, unlike the vegetable oils produced in the Orient, it was dark colored and uninviting in taste. It took considerable research before methods were developed for refining, decolorizing and deodorizing cottonseed oil to make it more acceptable as a food oil. In a country accustomed to solid animal fats rather than liquid oils, however, there wasn't a great deal of demand for the bland, light-colored cottonseed oil except as a salad oil.

The next development was to produce a solid fat from the liquid oil by hydrogenation. Once this was accomplished, hardened vegetable fats became competitors with lard. These fats had the advantage that their physical properties could be controlled in processing—both to make them better adapted for some purposes than the lard originally used and to maintain consistent standards of hardness and appearance. This, together with extensive advertising and the lack of any great amount of aggressive research on lard improvement, resulted in the loss of a considerable part of the home food market for lard.

From the first, the hardened vegetable product was sold on a quality rather than a price basis. While the vegetable shortenings were being introduced, an effort was made to produce a substitute for butter. Eventually, margarine was developed to such an extent that it now has about the same per-capita consumption as butter. Margarine has been sold largely on a price basis as a product designed to be equal to butter.

After it became evident that cottonseed oil could be made into a bland, odorless and solid cooking fat, it became apparent that other vegetable oils such as soybean oil might be used in the same manner.

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Soybean Development . . .

In the early 1920's, soybeans began to show some promise as a possible farm product. They had been brought into the country from China shortly before this by government agricultural experts. Soybeans had a rapid increase as an American farm crop, reaching the present acreage of more than 20 million annually.

Several factors contributed to this development. Farm mechanization practically eliminated horses and mules as draft animals in favor of tractors. As a result, a considerable part of the market for oats—long a traditional feed for horses—was eliminated, and there was a need for some crops to be grown on the otherwise idle acres. Another factor was the almost complete elimination of oil imports from the South Pacific during World War II. This resulted in a demand for an increased production of domestic food oils.

This led to a rapid expansion in the amount of soybeans produced and processed. If it hadn't been for this development of soybeans as an oil crop, it would have been difficult to have produced sufficient fats to take care of the normal diet needs of the United States and its allies during the war. The soybean oilmeal produced as a co-product with the oil also provided necessary protein supplement for the expansion of the livestock industry.

Another factor which helped the development of soybean oil as a major food fat was the development of improved oil-extraction methods. The development of the continuous screw press and later of solvent extraction allowed more efficient extraction of the soybean oil. This was important for two reasons: First, the relatively low oil content of soybeans compared with that of cottonseed and coconuts made it desirable to remove a great percentage of the oil during processing. Second, labor costs in the northern states where most of the soybeans were processed were generally higher than those in the South where cottonseed oil was produced.

Present Situation . . .

Largely because of the growing soybean oil industry, the United States has changed since the beginning of World War II from one of the leading importers of vegetable oils to the world's greatest exporter—exporting over 40 percent of the edible oil in world trade. In 1957-58, according to USDA figures, the United States exported 16 percent of its lard, 17 percent of its cottonseed oil, 41 percent of its tallow and greases, 36 percent of its soybeans and 20 percent of its flaxseed in the form of seed or oil. Thus it would appear that, unless either domestic consumption, exports or both can be increased, no further increase in vegetable oil production is desirable. But, before jumping to conclusions, let's look at some trends.

The production of fats, oils and oilseeds in the United States has been increasing, though per-capita consumption of edible fats and oils has remained fairly constant at around 45 pounds per year. Unless diet habits undergo unexpected changes, this rate will probably remain fairly constant.

The consumption of inedible fats for soap has declined on a per-capita basis largely as the result of the increased use of synthetic detergents. Drying oil (largely linseed) consumption has dropped also, mostly the result of the increased use of latex-type, water-base paints. But increased industrial use of inedible fats has roughly offset these per-capita consumption decreases. Thus, over-all per-capita consumption of all fats and oils has changed little from an annual average of about 66 pounds.

But despite no appreciable change in per-capita consumption of fats and oils in the United States, total consumption increased from 5,497,000 to 6,125,000 tons from 1952 to 1958. This has been due primarily to population increase.

On the whole then and barring some unforeseen technological development involving greater consumption, it appears that disposal of future increases in production must depend on increased population or increased exports.

Exports . . .

Oil and fat consumption is on the increase in some countries. India, for example, once a considerable exporter of vegetable oils, now has decreased exports to a very small amount to provide greater supply for an increasing population. On the other hand, peanut production has increased in Africa, resulting in greater exports. There's reason to believe, however, that both domestic and world consumption of fats in general may increase because of rising standards of living.

How much of the world increase will be supplied by exports from this country will depend on technological developments in growing and processing oilseeds in some of the underdeveloped countries as well as on economic factors such as prices and availability of American dollars. A considerable amount of present fat and lard exports have been made possible under Public Law 480, under which private exporters accept foreign curency for which they are reimbursed with dollars by the Commodity Credit Corporation.

With conflicting forces in operation, it's difficult to predict the future trend of exports. An increase of about 5 percent has been predicted for 1959, and it doesn't seem unreasonable to expect a general slight upward trend in the future. Much of this, however, depends on the ability of American agriculture and industry to keep both oilseed production and processing costs low through efficient operation.

Sources?

If an increase in total fat production is desirable, what should be the source? An increase in present fats and oils production? Or in the introduction of new oil-bearing seeds?

Part of the present production is of by-product fats and oils such as cottonseed oil, corn oil, lard and tallow. Both the primary product and by-product, however, would generally be expected to increase with the increase in population. The trend toward meat-type hogs may decrease the relative amount of lard. Likewise, any continued displacement of

cotton by synthetic fibers may reduce the cottonseed oil. This, though, will probably be minor. Soybean production has been increasing slowly but steadily recently. Some of this increase is in the South, replacing cotton. But about 18 percent of our soybeans are exported now.

Any increase in fat production would be most logically in food fats rather than drying oils because of the decreasing use of drying oils in the paint industry. The increase should preferably be of a vegetable oil, such as soybean, with a co-product meal suitable for animal feed. This is desirable to provide protein feed for the expansion of the livestock industry to provide meat for an increased population.

Since any presently desirable expansion in the fat field is likely to be small, any possible new oil crops should be considered carefully and individually. Several oilseed crops which are either new or grown only in limited amounts have been suggested for expanded acreage. These include safflower, sesame, sunflower, castor, rape and tung.

Safflower oil is the newest of the vegetable oils produced in this country. Safflower is an annual plant best adapted to drier areas than the Corn Belt. Production in 1957 is estimated at 114 million pounds in California and 13.4 million pounds in other states such as Nebraska, Colorado, Montana, Wyoming and North Dakota. Yield varies from 1,000-2,000 pounds per acre of seed containing 30-37 percent oil. The oil is a good drying oil, said to be superior in some film-forming qualities to linseed oil with which it's directly competitive. The meal is suitable for cattle feed. But in view of decreasing demands for drying oils, any large further expansion of safflower oil production seems unnecessary.

Sesame is an oil-bearing plant being advocated as a crop for the southern states. Yield is about 800 pounds of seed per acre, equivalent to 375 pounds of oil. The oil is a good food oil, and the protein in the meal is high in methionine, in which soybean meal is relatively deficient. The two meals, however, can be blended to give an almost perfect protein. Because of this and since sesame is a good food oil, there's probably an advantage in growing sesame as a new crop in certain southern areas rather than expanding soybeans into these areas.

Sunflowers also are an annual crop. They can be grown over a considerable area, including the Corn Belt. Yields of 1,200 pounds per acre of seed containing 31 percent oil have been reported in Minnesota. The new low-growing varieties may be harvested with a combine. The oil is a good edible oil, and the meal, like that from sesame seed, is high in methionine and can be blended with soybean meal in equal parts to make a very complete protein. It's believed that there's some advantage in sunflowers as a new oil crop since the oil is a food product and since the meal can be used to upgrade soybean meal for animal feed.

Castor beans have been raised as an oil crop for many years, but production as well as consumption has been extremely erratic. If no beans or oil were imported, it would require more than four times the current United States acreage to maintain domestic consumption at the 1956 level. Thus, with yields equivalent to about 900 pounds of oil per acre and improved harvesting techniques, it may be possible to expand the production of castor oil but at the expense of exporting producers in other coutries.

Castor oil is used largely as a drying oil and is competitive with linseed and tung oil. But there are other uses such as in the production of "turkey red oil," a textile dyeing aid, lubricant and brake fluid. It can be hydrogenated to produce a hard wax suitable, among other applications, as a constituent of high-temperature lubricating greases. There's a growing use for castor oil in the production of plasticizers and plastics such as nylon and urethane foams. A disadvantage is that the castor meal isn't suitable as an animal feed and, so, has limited value.

Tung trees are grown in the southern states in a belt extending about 100 miles north of the Gulf of Mexico. Annual variations in temperature make the yields uncertain. Tung oil is a drying oil, with particular application as a varnish constituent. New technical developments in the varnish industry have reduced the demand somewhat, and imports are restricted by law. The current supply now exceeds annual demand, and, because of a toxic constituent, the tung meal isn't suitable for animal feed. So any increase in tung oil production doesn't seem desirable.

Rape is primarily a cool-weather crop and is being grown in parts of Canada where soybeans don't grow well. Very little rape is grown in the United States. It has been an oil crop in Germany and Russia for many years. It is a good food oil, but the meal isn't satisfactory for feed use. It does not appear to be as practical for this country as other oils such as soybean and sunflower.

In Brief . . .

It seems reasonable to assume a moderately increased demand for food fats and oils in the future because of (1) probable increased demands in the United States from population increases and (2) probable increased export demands resulting from higher living standards in some foreign coutries.

Part of this will be met by increased production of present fats and oils. Another part could well be met by added production of sesame seed in the South and of sunflower seed in the North. Both of these contain very good oils, and the meals resulting from oil extraction form valuable supplements for soybean meal.

Some increase in castor oil production to replace part of that currently imported is a possibility—especially in view of the probable increase in demand for nondrying uses. Increased production of other drying oils such as safflower, linseed or tung does not seem desirable, considering the declining demand for them.

Incorporate the Family Farm?

Interest is increasing in the corporate form of business for family farms. It isn't a "cure-all" but, in some cases, may provide a tool for strengthening and preserving the family farm. There are both advantages and disadvantages to be considered. Here are some of the things you should know.

by Neil E. Harl, John F. Timmons and John C. O'Byrne

TO MANY PEOPLE, corporations imply largeness, monopolies, complexities and the like. To farm people especially, the word "corporation" may imply large-scale farming and "outside interests"—considered particular threats to the traditional family farm.

Why, then, even consider such a thing as incorporating the family farm? First, incorporation itself isn't a threat to the family farm and indeed, *in some cases,* may offer a tool for preserving and strengthening the family farm. Second, a new law provides certain advantages for a *small* corporation.

Interest Increasing . . .

Use of the corporate form of business for farm operations hasn't been extensive in Iowa. It has been more widely used in the ranching states. In the past few years, however, interest has been increasing in family farm incorporations as a means whereby the family farm can continue to thrive and adjust to changing economic conditions. Recent changes in corporation and tax laws have also increased interest in the possibility of incorporating family farms.

In this article, we'll attempt to outline the nature of a corporation and some of the possible advantages and disadvantages of family farm incorporation. The corporation is essentially an alternative form of business structure—and one open to farm families as well as others. Some farm families—particularly those with most of their assets in land and who have operating and transfer problems—may find incorporation an answer to their problems of strengthening the family farm as a business and family enterprise; others won't. But here are some of the things to know.

What Is a Corporation?

The corporation is a legal and economic entity — separate from the individuals who own, manage and work for it. A corporation has a status similar to that of a person. It is capable of doing business, making contracts, being sued, suing others, borrowing funds and living indefinitely without interruption by change of its owners or officers. Thus, the corporation may be considered as a legal person, with a capacity similar in nature to that of an individual proprietor.

In Iowa, a corporation may be organized by any number of persons. Even one person can incorporate his farm. There's no minimum limit on the value or capitalization of a corporation.

The outstanding characteristics of the corporation are limited lia-

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bility, continuing life and the separation of ownership and management. A sole proprietor owns his farm, equipment, livestock, etc., and makes the management decisions. In a partnership, the partners are the owners and decision makers. In a corporation, the shareholders are the owners but not the managers.

At the time of incorporation, shares of stock are issued, representing a share or fraction of the total worth of the farm business. A share of stock represents a percentage of total corporate worth, not an interest in individual assets. The shareholder is an owner of the corporation, but the corporation operates the farm and hires employees to carry on its business. The shareholders elect a board of directors to manage the corporation. The directors elect the officers who generally are responsible for the day-to-day operation of the corporate business.

In a large corporation such as General Motors, the separation between ownership and management is obvious and true in practice. In a small corporation, however, it often happens that a person is a shareholder, director and officer at the same time. So, in a small corporation, ownership and management may be merged in only one or more persons. If a corporation had only one shareholder, one director and one officer, ownership, management policy and day-to-day operation would be in the hands of one person. As the number of shareholders increases, the probability increases that some of the shareholder-owners will participate in management merely through their power to vote for the directors.

Most family farm corporations would be "closely held" corporations—with the stock owned by only a few persons and ownership of the business enterprise confined to a small group. Stock of a closely held corporation generally isn't available for purchase by the public. And stock transfer often is restricted by the articles of incorporation or by a shareholders' agreement to prevent the stock from falling into the hands of outsiders.

A closely held corporation, in its day-to-day operations, can function much like a partnership. The same corporate laws, however, apply to both big and small corporations, so certain corporate formalities must be observed.

Advantages, Disadvantages . . .

In considering the possibility of incorporation, it's important to look at the advantages and disadvantages of the corporate form of business. These will vary with individual farm family situations but should be considered in deciding whether incorporation would be an over-all advantage or not.

Limited Liability: Those considering incorporation often are seeking the limited liability that a corporation offers. Farmers operating their businesses as sole proprietors generally are fully liable for any and all liabilities arising from the business. Partners also generally are personally responsible for liabilities arising from the partnership business.

Shareholders in a corporation have only limited liability. Because the corporation is a separate and distinct entity, the shareholders aren't responsible for corporate debts or law suits except to the extent of their investment in the corporation.

This advantage, like others, will vary among individual farm families. Where all or nearly all assets of the parties are tied up in the corporation, this advantage loses much of its importance. Also, if shareholders in small family corporations find it necessary to commit personal assets to obtain credit or to avoid dissolution or bankruptcy, they have placed such assets at the risk of the business.

Another liability aspect involves the shareholders' personal obligations. In a sole proprietorship or partnership, business assets can be reached to satisfy personal obligations. If these are substantial, the business could be terminated. Because a corporation shareholder's ownership is in his shares of stock, creditors of individual shareholders would have to seek satisfaction from the stock—not from the assets of the corporation.

But the freedom from shareholders' personal problems isn't foolproof since a creditor might obtain an interest in or even control of a corporation in this manner. If the corporation or some shareholders had some kind of a "buy-out" agreement, it's possible that they might be forced to buy the stock to prevent an outsider from becoming a shareholder.

Access to Capital: Obtaining sufficient credit is a serious problem facing many farm operators. Inadequate capital for expansion and for financing livestock and equipment limits the size of many farm enterprises. Obtaining credit sometimes is easier for a corporation than for an individual.

Nonfarming members of the family may be encouraged to invest or retain an interest in the farm business by the use of the corporation. Investments can be made by stock purchases or by loans to the corporation. An investor in stock runs an owner's risk and receives a share of the profits as dividends. One loaning funds to the corporation would receive a fixed rate of return as interest.

The farm corporation could also be used to pool land, machinery, livestock and capital to achieve the efficiency and economy of a larger operation. Established farmers of one or more families might merge their assets into a single corporate organization.

The continued life of the corporation may act to decrease the risk of extending credit. This may or may not be true, depending on the attitude of the lending agency. Some lenders may require shareholders of a closely held corporation to sign as personal surety for corporate debt obligations.

Some corporations insure the lives of principal shareholders. This tends to lend stability to the corporation. The funds can be used to tide the corporation over a period of change in management by death or to underwrite a stock purchase plan at death. Such "buy-out" or stock purchase plans made mandatory at death can assure that management responsibility won't go to inexperienced

shareholders. A bank or other agency may be inclined to extend credit more liberally to the corporation if assured of continued management responsibility.

Also, incorporated farm operations aren't eligible for certain types of FHA loans, and this might affect some families adversely.

Continuing Operation: To some farm families, the corporation may offer a tool for maintaining a going farm business in the family circle—bringing management responsibilities to younger members and easing the transition at death. As a sole proprietorship, the farm business is usually interrupted and often dispersed with the death of the individual operator.

Thus, land holdings, livestock operations, equipment and sound business organization built up over a lifetime may disintegrate at the death of the owner. The heir remaining on the farm may be left with heavy encumbrances in payouts to other heirs. This can restrict his farming operations for several years and, in some cases, jeopardize his continued ownership of the farm. Also, uncertainties of potential heirs who may expect to operate the farm after death of the parents may prevent the making of improvements and long-run investments and plans necessary in today's farming.

A partnership terminates at the death of a partner. Similar problems arise even if a new partnership is formed by taking in the estate or successors of the deceased partner.

Some of these difficulties in the transfer of farm property between generations can be overcome, or at least tempered, by the corporate form of organization. A corporation may be formed for a definite period of years or indefinitely. So its continued life isn't dependent on the lives of people.

Since ownership in the corporation is represented by shares of stock, shares may be given away, sold during life or transferred at death without upsetting the continuity of farming operations.

A new tax provision, added by 1958 amendments to the Internal Revenue Code, permits estate taxes on a decedent's business to be paid in installments over a 10-year period if the business continues. This applies to any type of business organization. But the corporation often makes continuation easier.

Gradual Transition: Farm operators seldom retire abruptly, but gradually reduce the burden of participation in the work and management on their farms. Oftentimes, the farm has been the "savings bank" for the father and mother who have invested a lifetime of labor and savings in the home farm.

The corporation permits the division of ownership, control and management among parents, children and perhaps others in varying proportions. In receiving some of the stock, the younger shareholders obtain interests and a sense of responsibility that can become a strong motivation for work, saving and planning for the future. The separation of ownership and management in a corporation makes arrangements possible whereby ownership of the corporation is shared while voting control—the power to select the managers—is retained.

Sharing ownership of a corporation also means sharing the income after salaries are paid to the managers. Say, for example, that a father incorporates his farm, issuing 100 shares of stock to himself. The father and his only son operate the farm. The son gradually purchases 30 shares and then makes a "buy and sell" agreement with the father whereby the son could buy 30 additional shares at the death of the father.

This purchase would provide funds for the daughter's share of the estate. The remaining 40 shares could be left to the widow by the father's will, and she would be entitled to a share of the profits after the son is paid a salary. At her death, the widow might leave her stock to the son. Or she could leave some to the daughter and give the son an option to buy it from the daughter. Many different plans may be built around the corporate structure to share farm profits among members of the family with fair treatment to the persons who'll remain at home to operate the farm.

Transferring ownership gradually through lifetime gifts of shares within the allowances of federal gift tax laws may have a tax advantage over death taxes. Your attorney can furnish details on this.

Retirement Planning: The prospect of an adequate retirement income frequently is an inducement for the older shareholders to turn over ownership and control of the business operation to younger shareholders at an earlier time.

Incorporating the farm business permits the establishment of an employees' pension or retirement plan which may include owner-employees. If the plan is qualified under the tax law, payments to the plan by the corporation are tax deductible. Individual farm operators and partnerships may also have pension and profit-sharing plans for employees, but the owners aren't allowed to participate under existing law.

A sizable estate may be built up tax free for corporation participants because of the favorable tax features of retirement plans. The retirement program for shareholder employees in a family farm corporation could include payments from a retirement or pension fund, dividends from stock and the maximum corporate salary consistent with full social security benefits.

Another social security feature of the corporation is its ability to even out income by paying fixed salaries. This may be important to farmers nearing 65 who are anxious to qualify for maximum social security benefits. If the corporation can justify a salary of $4,800 per year, the shareholder-employee's social security taxes are paid on that amount, even though farm income from the corporation varies from year to year.

Income Tax: Usually there's no income tax gain or loss on the formation of a corporation. A person transferring his farm business to a corporation in exchange for stock has no gain, even though the assets have increased in value. The corporation continues to use

the tax base the property had for depreciation and sale.

On termination or liquidation of a corporation, stockholders will have a capital gain or loss measured by the difference between the basis of stock held and the amount of money or property received on termination. If the corporation redeems all of the stock of a shareholder or if the shareholder sells his stock, he'll have a capital gain or loss on the deal.

Regular corporations pay an income tax of 30 percent on the first $25,000 of taxable income and 52 percent on the rest. Before 1958, one argument against incorporation was that some corporate income was taxed twice—once when earned by the corporation and again when received as dividends by the shareholders. The 1958 Small Business Tax Revision Act, however, permits a closely held corporation with no more than 10 shareholders and only one class of stock to be taxed like a partnership.

If all shareholders elect this method of taxing, the corporate income is channeled on paper to the shareholders to pay at their individual income tax rates. Business losses and long-term capital gains are also passed to the shareholders if the corporation elects this method of taxing. This allows the shareholders to take full advantage of corporate losses and to pay income tax on only 50 percent of the long-term capital gains.

A corporation isn't eligible to be taxed like a partnership if over 20 percent of its gross receipts comes from investments such as rents, dividends, interest, annuities and securities transactions. A farm corporation set up as a landlord, for example, to hold land rented to tenants wouldn't be eligible to be taxed like a partnership.

Income tax aspects may be an important factor in deciding the over-all merits of a family farm corporation. The new "incorporated partnership" provision permits incorporation without substantial change in tax treatment, but the tax aspects should be carefully considered.

Other Taxes: The corporation has no particular qualities of itself that result in gift or death tax savings, but the free transferability of shares aids in making lifetime gifts to save death taxes. The issue and transfer of corporation shares is subject to a relatively nominal stamp tax. The property of a corporation and the stock of a shareholder are subject to property taxes, but there is an offset provision for the shareholder to avoid double taxation.

More Complex: Other than for paying taxes, the law requires very little of one who owns and manages his farm as a sole proprietorship—it's assumed that a mistake in judgment or management will harm only the operator. Somewhat more is required of a partnership. And since the corporation is a legal creature—existing apart from its owners and managers—it becomes more complex in formation and dissolution. The law seeks to protect creditors, owners and others connected with the corporation.

Incorporation requires the preparation of articles of incorporation which are submitted to the Iowa Secretary of State for approval and registration. The Secretary of State then issues a certificate of incorporation.

The articles of incorporation represent the agreement among the shareholders and establish the rights and powers of the corporation. In addition, a corporation has a set of by-laws containing additional details of operation and management.

Articles, by-laws and minutes of the first meeting are prepared by the attorney for the incorporators. Thereafter, most corporations have their attorneys prepare or at least review the minutes of all subsequent meetings. Minutes of the meetings of the shareholders and board of directors are carefully kept in written form. Since the corporation is an artificial person, responsible to its shareholders, all important decisions of the directors and stockholders are made at special or annual meetings and recorded in the minute books.

If there are to be pension plans, stock sale restriction agreements, "buy-out" plans, etc., the attorneys for the corporation and the shareholders will have to work these out.

Once the corporation is organized, the farm operation will run much the same as it did as a partnership or sole proprietorship except that more formal meetings will be held and more formal records of decisions will be kept.

Operational and tax records are about the same for any form of farm business organization, but there's a tendency for corporations to keep better records than individuals alone might keep. The Secretary of State also requires certain corporate reports, including a simple annual report.

Costs of Incorporation: As a more formal and complex legal creature than the sole proprietorship or partnership, the corporation involves greater cost of organization. Under the new Iowa Corporation Law which takes effect July 4, 1959, the fee for filing articles of incorporation is $20. In addition an annual fee based on stated capital is imposed on corporations. Your attorney can furnish additional details on these and other fees required by law.

The costs of organizing a corporation are deductible for income tax purposes over the first 5 years of corporate life.

In Summary . . .

Industry began using the corporate form of business extensively in the 1800's to solve some of the problems of individual industrial proprietors and as a means of adjusting to economic and technological change. Some farm families, likewise, may be able to obtain advantages and benefits by incorporation of the family farm, though the advantages and disadvantages should be weighed carefully.

An incorporated farm needn't cease to be a family farm and may, in fact, increase family participation. The main question is whether or not the corporate form of business is a better tool than the present form for a particular family farm business.

What can you do for Community Improvement?

by W. H. Stacy

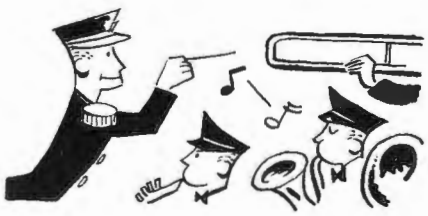
COMMUNITY improvement is a subject all too often neglected—and, often, the recognition for it. Such work, however, represents jobs that need to be done—frequently for the benefit of the entire community. One organization which has recognized this need and actively promoted better living and better communities is the Iowa Federated Women's clubs.

There were 856 clubs, representing 34,000 women, active in the state in 1957. A review of the reports of their achievements for the 2-year period, June 1956 to June 1958, shows that each of the 856 groups was involved in one or more community service projects. Other organizations are active in this area, too. But, to give you a picture and idea of the kinds of things that can be accomplished by these organizations, let's look at those undertaken by this one group.

Libraries: Iowa now has 421 local public libraries, and women's clubs have started 87 percent of them. This accounts for a very large share of the libraries in the smaller Iowa communities. In addition to starting new libraries, the clubs have assisted with the programs of existing libraries and have taken on projects such as remodeling buildings, adding books and magazines and providing story and reading hours.

W. H. STACY is associate professor of rural sociology at Iowa State.

Youth Recreation: Public opinion polls of community shortcomings often point to the need for more community recreation programs, particularly for young people. More than a fifth of the women's clubs in Iowa reported community service activities in this field—not including support given to regular youth-serving organizations and related programs.



Examples of the areas of service include summer recreation programs, supplying playground equipment, help with summer swimming programs, providing band uniforms and bandshell accommodations, sponsoring youth centers and help with craft and hobby classes. One club took the lead in forming a recreation council.

School Programs: The Clinton Junior Women's Club won national recognition for its work to help pass a school bond issue and its achievements in devoloping community music programs. Similar support for school bond issues was reported by three other clubs.

Five clubs carried on work for school reorganization. Other clubs sponsored career days, provided recognition for student achievement, contributed to school libraries, helped equip school kitchens and supplied other needed school equipment. Thirteen clubs mentioned contributions to student loan funds, and two clubs supported programs for exceptional children.

Work Opportunities: In one way or another, anything contributing to the development and attractiveness of a community has a bearing on its economic life and employment opportunities. Many clubs are active in this regard. An additional 12 clubs reported activities specifically related to industrial development and work opportunities for youth—securing vacation and after-school jobs for teenagers, cooperating with the local development organization, sponsoring youth guidance and counseling programs.

Handicapped and Needy Children: Over 30 clubs helped to advance programs for mentally retarded children, mainly by contributing funds, improving classrooms or providing equipment. Other clubs gave similar aid to schools for handicapped children. One club surveyed child welfare needs and contacted county officials about ways to develop programs dealing with the problems noted.

Senior Citizens and Shut-ins: Senior citizens and shut-ins received special attention from 94

women's clubs in Iowa. Some gave their attention to county homes; others reported projects of visits, gifts and services to people in nursing homes and rest homes.

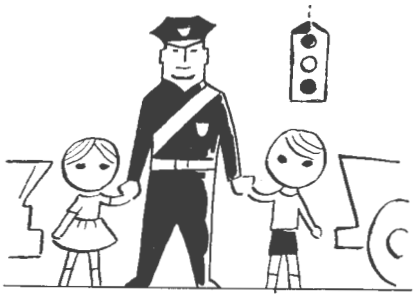
Mental Health: State mental health institutes received gifts or services from 13 of the clubs. Five clubs in county seat towns worked for the establishment of mental health centers or boards.

Hospital Services: The Missouri Valley women's clubs played a major role in an educational, planning and promotional campaign which resulted in building a $450,000 community hospital. Two clubs in Elkader supported similar endeavors. Financial support and needed equipment or supplies for local hospitals were furnished by other clubs. Still others reported sewing for hospitals, visiting patients and helping with blood bank programs.

Physical Health: The Marathon Study Club persuaded federated clubs in 51 counties to join an educational campaign on multiple sclerosis and enlisted help in the cause of additional legislation for aid to the permanently and totally disabled.

Tuberculosis testing programs were sponsored by five clubs; immunization and inoculation projects, by three. Three clubs sponsored eye testing of school children, one promoted fluoridation of city water, and one helped develop a dental program in the schools. One club sponsored a health clinic and vaccinations; others helped obtain a county nurse. Additional health activities included open meetings to discuss heart disease, folding cancer dressings for home treatment and raising funds to provide heart surgery for a local child.

Safety: Additional safety signs were provided in five communities



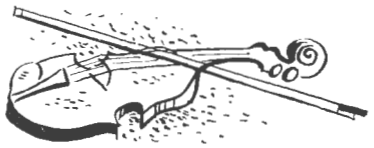
as a result of efforts by women's clubs. Five other clubs aided in establishing signal lights or stop signs at school crossings. One club promoted improved lighting in the school parking area; another, a one-way street by the school. Six clubs sponsored school patrol or traffic safety projects, including a driver-training program.

Town Appearance, Sanitation: Local park improvement was of general interest to clubs throughout the state, and several clubs undertook specific projects. Nine clubs were instrumental in developing street-marking or house-numbering programs. Other clubs started or helped develop litterbug or community cleanup campaigns. Five furnished trash containers for use in the town, and one paid for garbage disposal from a wayside park. Other projects included work with the town council for a sewer system, helping to pass a water bond issue, securing a favorable vote for cleaning up a polluted lake and helping to improve lake beach area.

City-beautiful projects, home yard improvement contests, flower planting and tree planting were sponsored by some clubs in the state. Three clubs reported landscaping projects for municipal buildings. Two clubs helped promote plantings at swimming pools, five gave attention to cemetery improvement, and one to community hospital grounds.

Community Buildings: One club reported establishing a community hall, and another remodeled an old schoolhouse into a usable community building. Four clubs in one town and one in another helped to convert old moviehouses into community buildings. One club aided in getting out the vote for a new fire station. Another worked toward a new hall to replace the old building used by the fire department and town officials. Others reported working for community centers—either for new ones or for remodeling and redecorating old ones. Clubs in a few towns also furnished equipment for or helped to remodel the town hall.

Adult Education, Fine Arts: Women's clubs have, as one of their major interests, that of advancing adult education and enjoyment in the realm of the cultural arts. Their regular meetings present many programs of this nature for their members. They also support many community activities in this area.



The Clinton Junior Federated Women's Club established and maintained a symphony orchestra, provided a scholarship for young musicians and helped to develop a community chorus concert. Three clubs in Lamoni supported a concert and lecture series. Similar work for fine arts festivals, public lectures and recitals was mentioned by other groups.

Art classes for the entire community were sponsored by one club. A Cresco club planned the organization of adult education classes. Other clubs planned family life meetings, organized "little theater" groups, presented community plays and conducted summer reading programs for people in the community.

Other Programs: The women's clubs of Iowa helped in many other ways to better their communities and the lives of their citizens. Some of the other areas of community service in which women's clubs participated are: church programs, helping newcomers, youth-serving organizations, work with community councils, Christmas programs, local and national fund-raising projects, international relations, patriotic programs, and programs dealing with government and local history.

FOR YOUR INTEREST

soils

Seek More Information On Movement, Behavior Of Soil Water

FROM A PRACTICAL standpoint, every crop grower knows that soil water and moisture affect the growth of his crops—sometimes making the difference between success and failure of the crop. Important as it is, however, relatively little is known about the movement and behavior of water and moisture in the soil.

Don Kirkham, Howard Johnson and Raymond Kunze of the Experiment Station are conducting basic research on the movements of water and gases in the soil and their relation to other physical properties of the soil. These detailed studies involve cooperative investigations by soil scientists, agricultural engineers, physicists and, where appropriate, atomic scientists.

In some of the current work, deuterium (heavy water) is being used to trace certain water movements and behavior characteristics. Another study is being initiated to find out more about the types of water movement involved in the evaporation of water from the soil.

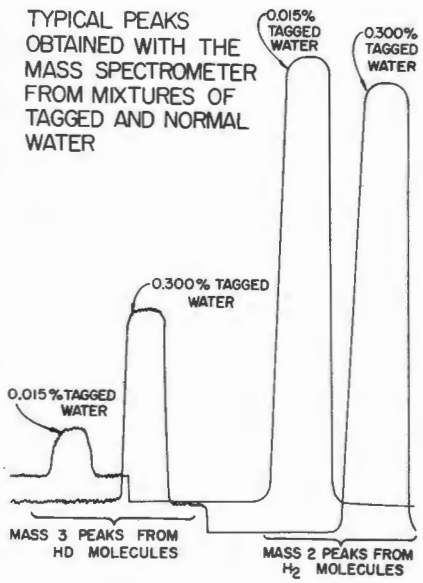
Compare Manure, Commercial Fertilizer

EFFICIENT CROP production on a farm depends on efficient and effective use of farm by-products, such as manure and crop residues, as well as fertilizer. Experiments conducted by John Pesek and co-workers are aimed at evaluating the effectiveness of manure in terms of commercially available sources of nutrients. The manure is applied plowed down ahead of the corn crop at the rate of 2 tons per acre per year for the rotation. The commercial P_2O_5 and K_2O are applied at rates of 30 pounds per acre per year for the rotation, but with the application split—the corn crop receiving its 1-year's supply in the hill at planting time and the balance being applied ahead of the oats.

Because of the method of applying the commercial fertilizer, an evaluation can be made only when the average total yield of the rotation is considered. The crops at all locations tested respond to phosphorus, and all except oats respond to potassium. Average responses to potassium, however, vary from slight to large depending on the soil type and location. Responses of all crops to manure are high.

There's a residual influence of the manure on all crops following the corn. This high residual effect is at least partly due to the fact that relatively small quantities of phosphorus and very small amounts of potassium are removed in the grain. Corn stover residue is then returned to the soil and serves as a source of phosphorus and potassium for the other crops. Slow decomposition of the manure probably continues to release available nitrogen directly to the oats crop following the corn.

The photo at left below shows the mass spectrometer used by scientists at the Experiment Station to detect heavy water (deuterium) as a tracer for studying the movement of water in soils and plants.



farm business and management

Iowa Land Values Increase in 1958

IOWA FARM LAND values increased an average of 8 percent during 1958, according to Dwight M. Gadsby of the Experiment Station. On Nov. 1, 1958, the state average was $244 an acre—

up $18 from a year earlier. And, in contrast to the year before, land values increased in all areas of the state, with the greatest percentage increases for low-quality land.

The two largest factors in the rise, says Gadsby, were the continued pressure for additional land to add to existing farms and the relatively few number of farms for sale. Other factors were at work, too—including both "swelling" and "dampening" factors. But the net result of all of the factors was on the value-increasing side. In total the average value of high-quality land increased about 6 percent; medium-quality land, approximately 8 percent; and low-quality land, about 10 percent.

These figures are based on reports from 576 Iowa real estate brokers who replied to the 1958 questionnaire on farm values in the state.

What's the Best Size For Dairy Herds?

MANY IOWA dairy farmers are now receiving well below $1 per hour for their labor. In many cases, however, it would be possible to increase these earnings to more than $2 per hour, say economists Earl O. Heady, Randolph Barker and Hugh Stewart of the Experiment Station. Mainly, the operators would have to be willing to expand the size of their herds and to adopt loose-housing techniques.

Fixed costs and investments are relatively high in dairying, even with loose housing, the economists explain. But these costs can be reduced by as much as 65 cents per hundredweight on farms with typical 3- and 4-stall milking parlors by expanding herd size from 15 to 25 cows.

In their study of different herd sizes and production techniques and their effects on returns, the economists found that a herd size of about 25 cows makes it possible to realize most of the cost economies related to herd size. The economists point out, however, that increasing herd size to take advantage of these cost economies over the long run may require a considerable immediate investment.

They add that herd size on most Iowa dairy farms is limited not only by labor but also by the supply of forage. And, in order to expand herd size, some dairy farmers may find it more profitable to buy some roughage than to change their rotation to include more forage.

Vertical Integration Further Developed In Europe Than Here

THOUGH RELATIVELY new to Iowa agriculture, vertical integration has been carried much farther by both farmers and urban consumers in most western European countries. This is particularly true in the Scandinavian countries, reports Frank Robotka of the Experiment Station. But the development of vertical integration in the western European countries was made mainly through cooperatives, he adds.

In the Scandinavian countries, for example, from 90 to 98 percent of the milk produced is assembled, processed and distributed—even at the retail level—by farmers through their cooperatives. And, in Denmark, from 70 to 80 percent of the hogs slaughtered are processed and distributed by farmer cooperatives.

The extensive development of integration in Western Europe, however, hasn't been a "cure-all," Robotka says. Despite the high degree of integration, excessive production has come about in dairy, pork and some other products.

horticulture

Dormant Strawberries Survive Poorly When Planted in the Fall

DORMANT STRAWBERRY plants show poor survival when planted in the fall, according to a study by E. L. Denisen of the Experiment Station. Denisen compared the results of fall and spring planting of dormant strawberry plants, and compared fresh-dug with dormant plants for fall planting.

Most strawberry plants sold by nurseries are dug in the fall, stored at below freezing temperatures, and shipped or sold locally

Dormant strawberry plants show poor survival when planted in the fall. Because of heaving, this fall-planted strawberry died during the winter. Spring-planted berries had much higher survival.

while still dormant in the spring. Those sold for fall planting usually are dormant too, having been in cold storage during the summer months.

Results of the comparison study of these two planting methods showed that the dormant plants bloomed shortly after planting. This may have greatly weakened the fall-planted strawberries before the approach of winter. Fall-planted dormant plants showed an extremely poor survival rate; fall-planted fresh-dug plants survived much better. A corncob soil mulch helped the survival of fresh-dug plants. The spring-planted dormant plants survived well and had a 93-percent stand.

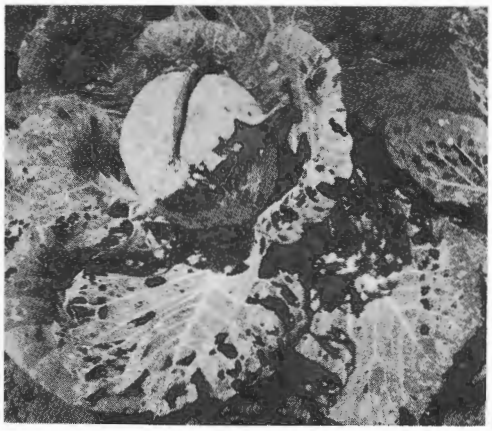
Name All-America Rose Selections

THREE ROSES have been chosen to receive the All-America Rose Selections award for 1960. They are: Garden Party, a white hybrid tea; Sarabande, a brilliant orange-red floribunda; and Fire King, a dark orange-red floribunda. These roses should be available from commercial sources in the fall of 1959, reports Griffith J. Buck, who directs the Iowa phase of the All-America Rose testing.

Entries from previous trials which have been introduced commercially—though they have not received the AARS award—are: the hybrid teas, Sunlight, Kordes' Perfecta and Angel Wings; the grandifloras, Governor Rossellini and Gold Coast; and the floribundas, Green Fire, Heat Wave, Ruby Lips, Pink Chiffon and Red Wings.

Heptachlor Controls Thrips in Cabbage

IN 3 YEARS' trials at the Experiment Station, heptachlor has been outstanding in controlling onion thrips infesting cabbage. The thrips cause so-called "bronzing" of cabbage, and they represent a contamination of both fresh market cabbage and processed sauerkraut. Heptachlor at ½ pound per acre added to Phosdrin, DDT or parathion adequately controlled thrips if weekly or biweekly spray applications began at heading.



LEFT: Cabbage leaf-feeding caterpillars have destroyed the food value of this head of cabbage; it wasn't protected from diamondback moths, the imported cabbage worm or the cabbage looper. RIGHT: This head of cabbage is from the same plot, but was adequately protected with insecticides from the three leaf-feeding caterpillars.

Insecticides were also tested against various other pests attacking cabbage. Here are the results as reported by E. T. Hibbs: The imported cabbageworm and the diamondback moth were adequately controlled with Phosdrin at ⅓ pound per acre, endrin at ¼ pound per acre, Dibrom at ½ pound per acre, and DDT at 1 pound per acre. (These are listed in descending order of control. That is, Phosdrin was most effective; endrin next; and so on.)

The cabbage looper was controlled by the following formulations in descending order of effectiveness: endrin at ¼ pound per acre, Phosdrin at ⅓ pound per acre, Thiodan at 1 pound per acre, parathion at ⅓ pound per acre, Dibrom at ½ pound per acre, parathion at ⅓ pound per acre, and DDT at 1 pound per acre in weekly applications.

grains

When's the Best Time To Harvest Oats for Silage?

INTEREST HAS been increasing during the past few years in using oats for silage. Results from Experiment Station research indicate that the best time to harvest oats for satisfactory silage is when the grain is in the early- and mid-dough stages, according to F. P. Gardner who directed the research. The research was aimed at finding the effects of both variety and stage of growth on yield and quality of oat silage.

Over a 3-year period, it was found that the yield and percentage of dry matter increased sharply as oats matured from the boot stage (just prior to heading) through the late-dough stage. As much as 12 tons of dry matter per acre were harvested from oats cut at the early- to late-dough stage, compared with only 6 tons when harvested at the boot stage.

The moisture content of the forage varied from as high as 88 percent in the boot stage to about 55 percent in the late-dough stage. The moisture content generally was best for silage preservation at the early-dough through at least the mid-dough stage. Moisture content was too high for good silage quality at earlier stages of growth. The protein content was highest at the boot stage and decreased uniformly through the late-dough stage.

Differences among oat varieties included in the tests weren't great. Gary, a tall, late variety, was more productive in 1958 than were three midseason varieties, but the difference was less striking in the previous 2 years.

When dairy animals were given free access to the silages harvested by direct chopping at different stages of growth, there was a strong preference for the silages harvested in the early- to late-dough stage. Silage from oats

harvested earlier tended to be slimy and had a foul odor. Silage from the late-dough stage of harvest was eaten readily but showed more top spoilage than did silage from the other stages of harvest.

Examine Timing, Rates Of Treatment for Borers

In 1958, granular formulations of DDT, endrin, heptachlor and toxaphene were recommended for corn borer control. Experiment Station and USDA tests of these insecticides show that the following granular formulations and rates are equally as effective in controlling first- and second-brood borers as 1 pound of DDT in granular formulation: endrin at 0.2 to 0.25 pound, heptachlor at 0.75 pound and toxaphene at 1.5 pounds per acre.

Likewise, the same granular formulations at the same rates were equally effective for both broods on sweetcorn.

Six granular carriers were tested, and all gave equal control when a constant amount of DDT was applied with each. The size of the granular particles had no effect on control.

Tests to determine the best time to apply insecticides gave the following results: In a late-planted field, the best second-brood control was obtained when 68 percent of the plants were shedding pollen, and 90 percent of the plants still had green silks. In another field planted earlier, 100 percent of the plants had shed pollen and 95 percent of the plants had dry silks when the best second-brood control was obtained.

The researchers also checked the effect of granular application on yield of field corn. One application of toxaphene, DDT or parathion for first-brood control increased the yield 6 to 14 bushels per acre depending on the time the insecticides were applied. Second-brood studies indicated a loss of over 10 bushels from an artificial infestation of borers made when the plants were shedding pollen.

These studies had the cooperation of a number of specialists both from the USDA and from the Iowa Experiment Station. M. L. Fairchild, E. E. King, G. W. Mauston and A. N. Sparks were responsible for the entomological phases of the work. W. G. Lovely was in charge of all equipment, and D. V. Sisson was responsible for the statistical analyses.

special subjects

Prevent Undesirable Regrowth in Floodplain Areas?

A PROBLEM in floodplain areas following flooding is the regrowth and development of undesirable plant species. Poison ivy, for example, is one of the more persistent species that take over as weed, shrub and vine cover redevelop.

Experiment Station and U.S. Forest Service researchers are seeking methods of achieving more desirable regrowth as well as the control of undesirable regrowth. Clearing, burning and combinations of the two are being tested, under the direction of J. M. Aikman and Glenn H. Deitschman, as means of controlling regrowth.

The Insect Problem Varies With Weather

Populations of major agricultural pests tend to fluctuate with the weather, according to H. M. Harris of the Experiment Station. This conclusion is based on many years' observations of population trends of Iowa insects.

For example, says Harris, in 1958 grasshopper populations continued the trend downward for most of the state — except in northwest Iowa where there was a noticeable drouth area conducive to grasshopper survival.

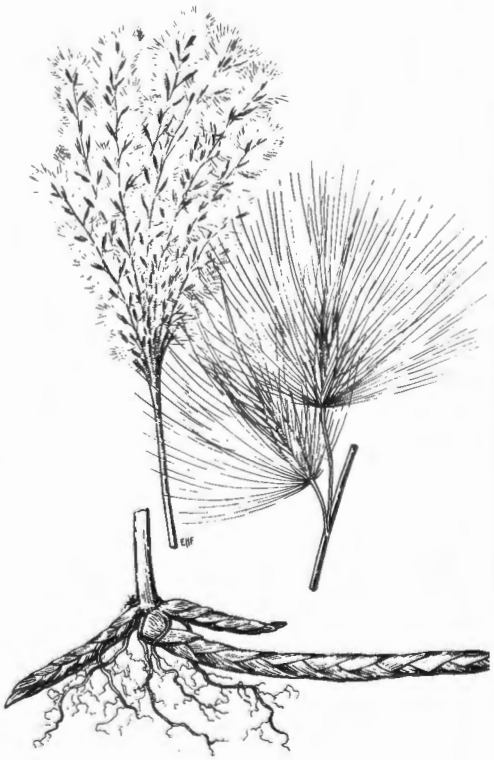
Similarly, populations of the European corn borer in northwest Iowa were markedly down in 1958 from the year before. But in other areas of the state where local weather was more favorable, the population trend of the borer, though downward, was less markedly so. Chinch bug populations continued at a very low ebb in 1958, adds Harris.

"New" Ornamental Grass May Pose Weed Problem

SPECIMENS of an introduced ornamental grass, *Miscanthus sacchariflorus*, have been discovered in a considerable number of southern Iowa localities. Its future, however, is uncertain, and it may pose a problem, according to Richard W. Pohl of the Experiment Station.

He says the species is a tall perennial—growing up to 6 feet in height—with a large, silvery, plume-like seed head. It's very leafy and, thus, may have forage possibilities. He adds, on the other hand, that the species is very aggressive and spreads rapidly by underground rhizomes. This means that it could become a dangerous weed in Iowa, with characteristics like quackgrass and Johnson grass.

Because of this, botanists and plant pathologists at Iowa State plan to study its control immediately. Preliminary attempts will be made to kill out a colony of this grass at Lowden.



This is a detail drawing of the introduced ornamental grass, *Miscanthus sacchariflorus*, which has been discovered at a number of locations in the southern part of the state.

Smooth Floor or Carpet?

Some of the key points to consider in selecting a floor covering are the initial cost, upkeep and the care you expect or wish to give. But there also are more elusive factors to consider in choosing for your own needs.

by Elizabeth Beveridge

THE KIND of care you expect or wish to give your floors is one key point to consider in buying floor coverings—particularly in deciding between carpeting and smooth-surface floor covering such as tile. Other important points to check before buying are initial cost, cost of upkeep and all of the factors that contribute to family comfort and enjoyment of the home.

Experience in your own home undoubtedly has helped you draw some conclusions on the satisfaction with both kinds of floor coverings in your family circumstances. Figures on purchase price and cost of installation can be obtained from dealers. Other information, however, is more elusive.

We Asked Families . . .

The new married-student housing units at Iowa State offered a convenient opportunity to study some of these more elusive factors. All apartments in Hawthorn Court are alike in size, arrangement and construction. All were built at the same time and of the same materials, including floors finished with asphalt tile. The apartments are close together and subject to the same weather, dust and mud. The occupants were all young married couples.

A number of them were interested in the subject of floor coverings and willing to cooperate in a study. Of these, 24 families were chosen who had at least one child under school age but at least a year old—an age at which children are home all day and spend lots of time on the floor.

Carpeting used for the study was a good all-wool twist weave, a type that's used in many homes and not expected to require special care. The color was gold—neither so light nor so dark as to create special problems. The carpet was fitted wall-to-wall in the living room and hall of each of the 24 apartments but wasn't fastened down.

For more than a year, families had the carpet down on top of the asphalt tile for about half of the time, and the asphalt tile uncovered the rest of the time. Under a carefully controlled rotation plan, half of the families were living with carpet, half with asphalt tile, at any one time. Each homemaker was given a vacuum cleaner to use; half were of the upright type, half canisters, but all were of the same make.

Each homemaker was supplied with general instructions on the care of the two types of floors. These included the use of self-polishing wax for smooth floors, regular vacuuming for carpets. Then each homemaker was asked to care for the floors by her own methods, much as she would if they were her own floor coverings. Each also kept a record of the time spent in floor care and of the kinds and amounts of supplies used.

Several times during the year, questions were asked of the homemakers about their attitudes toward the two types of coverings—particularly to see if there was any change in attitudes as the result of alternate use of carpet and smooth floor covering under like conditions. Interviewers were also able to observe the methods and motions homemakers used in caring for the floors.

Cleaning Time . . .

When records were totaled, they showed that, on the average, homemakers used 20 minutes less per week to care for carpeted floors than they did to care for the uncarpeted floors. This was an average over the whole period of the study and not an actual week-by-week difference. Cleaning and waxing of the smooth floors, for example, accounted for much of the increased time, though this wasn't done with any regularity. Researchers observed also that furniture was more likely to be moved on smooth floors so that the area cleaned tended to be larger.

The homemakers were keenly aware of the time spent in cleaning and waxing smooth floors. This may be partly because once scrubbing is started, there's no stopping until the job is done; time must be allowed for wax to dry while

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For more than a year, the families in the study had carpet down on top of the asphalt tile for about half of the time and the asphalt tile uncovered for the rest of the time. Under a carefully controlled rotation plan, half of the families were using carpet, half asphalt tile, at any one time.

traffic is kept off. In these rather small apartments, work had to be done when small children were asleep and other family members away to allow the wax to dry without being walked on. Thus, thorough cleaning of the smooth floors showed up clearly on the records.

In contrast, it was impossible to find much evidence in the records of thorough cleaning of the carpets. A once-over with the vacuum cleaner when it was thought to be needed was the usual procedure. Also, children can be moved from one part of the floor to another to keep out of the way, and they needn't be banished until the job is done. Too, vacuuming can be interrupted at any time without causing extra work.

Differences among homemakers on time spent for cleaning were great. For smooth floors, average time per week varied from 27 to 189 minutes; for carpeted floors, from 26 to 100 minutes. There was a definite tendency for those who spent the most time on one type of floor also to spend more time on the other. All but three spent more total time on smooth floors than carpets.

Cleaning Methods . . .

If you find some kinds of motions more unpleasant or tiring than others, you may be interested in the ways the Hawthorn Court homemakers cared for their floors. The average distance traveled during one regular cleaning of the carpeted floors was about 160 feet, while about 209 feet were traveled for smooth floors. The homemaker pushed or pulled something or carried heavy objects (over 5 pounds) through part of this distance. Cleaning the carpets called for more of this kind of work than did cleaning asphalt tile. Carrying the canister vacuum cleaner and its parts accounted for some of this difference.

Distances traveled while carrying light objects, however, were much greater for cleaning smooth floors. It took more bending to lay down or pick up objects when cleaning carpets (again, associated especially with the canister vacuum and its tools). But working in a stooped position was more frequent for smooth floors. There was more shoving of furniture on smooth floors. When cleaning carpet, moving furniture called for more lifting than shoving, so it wasn't moved. Homemakers sometimes said that dust doesn't show much on carpet anyway, so they didn't feel it necessary to clean carpet under furniture.

There were almost as many patterns for cleaning as there were homemakers, even though the area was the same for all. There were those who worked their way back and forth across a room. Others went around the edges first and then worked in the middle. Still others followed no recognizable pattern. As you might guess, homemakers who followed no pattern usually spent more time in cleaning than those who did it in either of the other two ways.

Cost of Upkeep . . .

The period of use of the two kinds of floor covering was too short to obtain useful information on the long-term cost of upkeep. There's a continuous use of cleaning and waxing products in the care of asphalt tile floors, but the cost of equipment is relatively small. Major costs of carpet upkeep are the purchase of a vacuum cleaner and occasional commercial cleaning. Then, for long periods, the costs are likely to be minor—disposable bags for the vacuum, rug cleaning compounds, spotting fluids, etc.

What They Thought . . .

What the homemakers in the study thought about carpets can be summed up very quickly: They liked and wanted carpet. At the beginning, 23 of the 24 homemakers said they'd prefer to have carpeting in a new home if cost weren't a factor. But only 14 believed they'd be able to purchase carpeting in the near future. After this experience with both kinds of floor covering, however, most of the homemakers seemed willing to delay the purchase of other items to acquire carpet soon.

There was little doubt that homemakers would rather clean carpet than wash and wax smooth floors. Some said that they'd rather have carpet even though it was quicker to dust-mop a smooth floor than to get out a vacuum cleaner for the carpet, though fur-

niture was more easily moved on the smooth floor and though spills on smooth floors were easier to wipe up.

Factors other than care weighed heavily in the preference for carpet. Homemakers thought carpet gave a feeling of warmth to the home. Since these homemakers were mothers of young children, carpet assumed a real importance in making the floor comfortable for children's play. The mothers also had less concern for children being hurt because carpet cushioned the frequent tumbles, and they felt there was less chance of slipping and falling with carpeting.

Any restrictions on family activity imposed by furnishings have an effect on family life. After living with carpet and smooth floors alternately for a year, homemakers' views boiled down to this: Restrictions imposed with smooth floors were largely to protect children or to prevent noise. With carpets, the restrictions were for protection of the carpet and to avoid the trouble and effort of cleaning up spills. The restraints with smooth floors were more directly associated with small children. With carpets, restraints were more directly associated with older children who engage in such activities as coloring, painting and pasting. There was more concern about spotting carpet. "Carpet," homemakers said, "stains more easily, is more difficult to clean when things are spilled and is a more expensive item to ruin." Here, they were thinking of the tile type of smooth floor covering which permits replacement of individual tiles.

Entertainment of adults seemed to be little affected by floor covering—though a few homemakers said they'd be more careful to see that small rugs were placed at doors and that ash trays were provided if they had carpet. More safety precautions were taken with smooth floors in entertaining children—avoiding the handling of breakable objects, restrictions on running, etc. One mother said she could entertain more children when she had carpet because they could sit on the floor.

A rather intangible factor in the preference for floor coverings appears to be "what other people think." These homemakers believed that having carpet shouldn't influence opinions as to the economic, social or prestige level of other folks but that "it just does."

Noise Control . . .

Families in the study believed, and correctly, that carpet on the floor muffles noise. They felt that noise of children's play was reduced and that carpet reduced sounds that were likely to interfere with enjoyment of radio or television. Since the husbands were students and needed quiet for studying, it's likely that these homemakers were unusually aware of distracting noise.

Sound level measurements confirmed these opinions by showing that carpet definitely reduced the level of background noise, floor impact noise (such as dropped toys or footsteps) or noise produced above the floor. Carpet, in fact, was the only factor found to have any measurable effect on the noise level.

What It Means . . .

Young families with a small child or two living in a compact house or apartment could expect their experiences with the two types of floor coverings to be similar to those of the Hawthorn Court families. Most families however, as they consider such long-range plans as the buying of floor coverings could anticipate some different conditions. The study couldn't produce the answers to the following questions, but your own consideration of them will help you make decisions as to the type of floor covering best suited to your needs and wishes.

- Would a larger floor area in a larger house require the same relative time and energy for upkeep, or would less concentrated living reduce the care needed? Would more specialized areas of activity call for one kind of floor covering in one area, another someplace else? Would more room enable the family to be out from underfoot so that cleaning could be done with fewer interruptions?

- Would older children in the family make a difference since their activities and needs are different from those of toddlers?

- What about family hobbies? (Hawthorn Court residents were too busy getting an education to have many hobbies.)

- What's the "life expectancy" of floor coverings? When wear becomes apparent, will you want to replace the entire floor or try to get more wear out of what you have? What about repair of accidental damage? What are the long-range upkeep costs? Any good carpet needs occasional professional cleaning; smooth floors, a complete wax removal. What about the cost of equipment and supplies for upkeep?

- How interested are you in finding the best and easiest products and methods for caring for your house and its furnishings? There was, for example, a great difference in the apparent effort used in floor care in the study. Spending lots of time and energy didn't necessarily insure the best looking floors. In fact, some of the best looking floors were waxed infrequently.

- What about your own standards? Must carpets or smooth floors be spotless? Does dust you can't see bother you? Do you find yourself saying "no" to activities that might spot the carpet or track up a newly polished floor?

- Of these factors and others that you might add, which are most important to you? The experiences of others can give you a basis for judgment, but the right decision for you must be based solidly on your own needs, goals and values.

When you've made your decision and the floor covering is installed, a plan for regular systematic care will lengthen the life of your floor. It will also enable your family to enjoy your home without undue restrictions and make the job of upkeep easier.

Farm Outlook...

STORM CLOUDS warning of possible future trouble for the cattle business are beginning to gather on the horizon. The seriousness of this future trouble depends mainly on how fast the buildup of cattle numbers proceeds in the next few years.

Last year's cattle buildup totaled 3½ million head. In 1 year, this boosted cattle numbers to a new all-time high—just slightly above the previous peak of 1956.

But the pace of the buildup so far in 1959 has been even greater. Cattle slaughter in the first 4 months of this year fell about 7 percent below that of a year earlier. Calf slaughter was down 21 percent! A combined reduction for the first 4 months amounted to around 1.2 million head. And this cut took place even though fed cattle slaughter averaged 7-9 percent above last year.

Cow slaughter in the first 3 months of the year was 24 percent under last year, the smallest for that 3-month period since 1952.

So we have all of the characteristics of a potential cattle boom! Slaughter is down as cattlemen hold back cows and calves. The movement of cattle out of feedlots is delayed. Prices are climbing. These create a sense of prosperity that runs throughout the entire cattle industry.

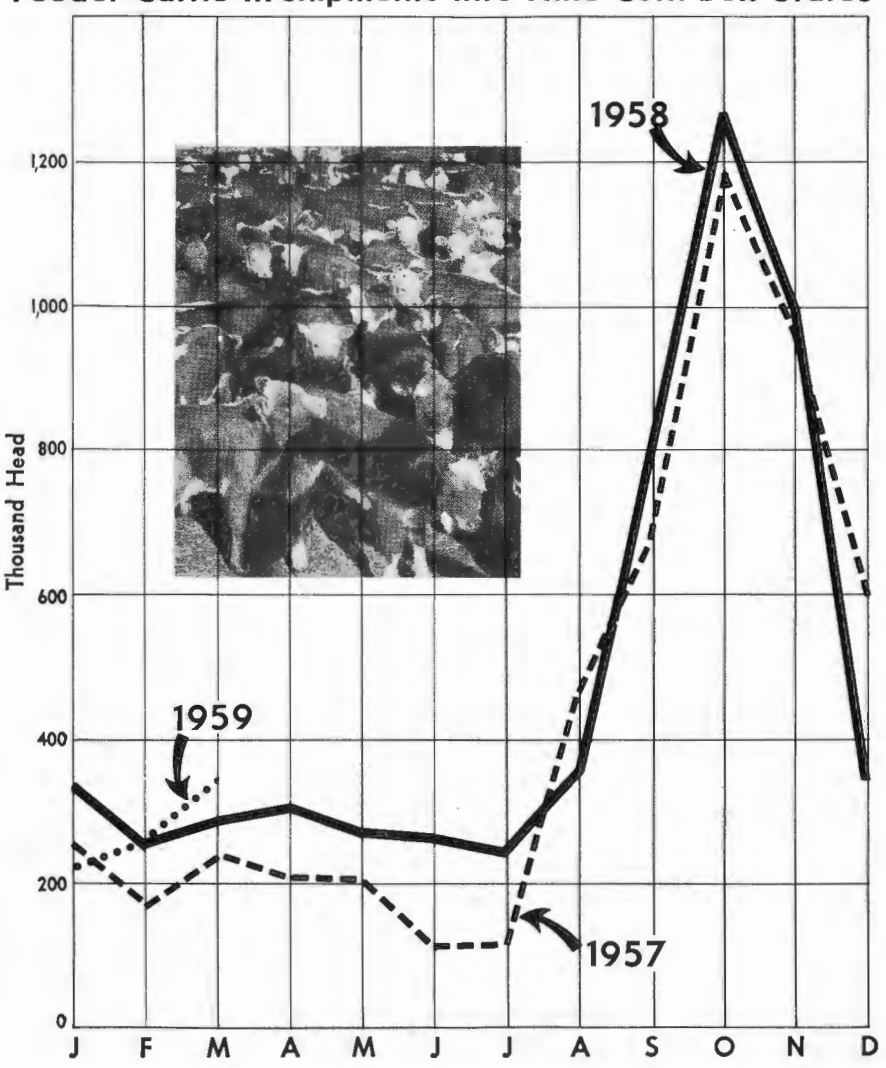
Cattle feeders look at the strong fed cattle prices. And, in the face of increased marketings, they conclude that the demand for beef is exceptionally strong. Cattle raisers look at the strong prices for feeder cattle and for cows and calves; and the raisers, too, conclude that the cattle business is a sure way to make money.

Both overlook the fact that the good prices in the cattle business are the result of the sharp cutback in the slaughter of cows, calves and grass cattle. The January-April slaughter rate suggests that cattle numbers on farms could increase by 4-5 million head by next Jan. 1. Such an increase wouldn't be far below the rate of expansion that took place in 1951-52 when numbers rose 6 million head each year.

But the increase for 1959 in itself isn't the real danger. The danger is that this rate of increase will continue. Much of the recent increase in cattle numbers represents young stock being held back; only a fifth of the added numbers during the past year were cows. As the heifer calves and heifers being held back become available for producing calves, the capacity for annual beef production will go up sharply.

The plain fact is that we're building up a *potential* capacity for annual beef production at a faster rate—far faster—than the growth in population, which is rising at about the rate of 1¾ percent a year. Here lie the seeds of past difficulties in the cattle business. The rate of growth in cattle numbers has been much more sporadic than the rate of growth of population.

Feeder Cattle In-shipments Into Nine Corn Belt States



Beef is a preferred item. If the rate of increase can be held roughly to only slightly greater than the population increase, the long-run prospects for the beef business are good. For as people get more income, they turn to beef. But, if the rate of increase in the productive capacity in the beef industry goes up considerably faster than the increase in population (and faster than the advance in income and population combined to boost the rate of demand), then we're headed for trouble in the beef business!

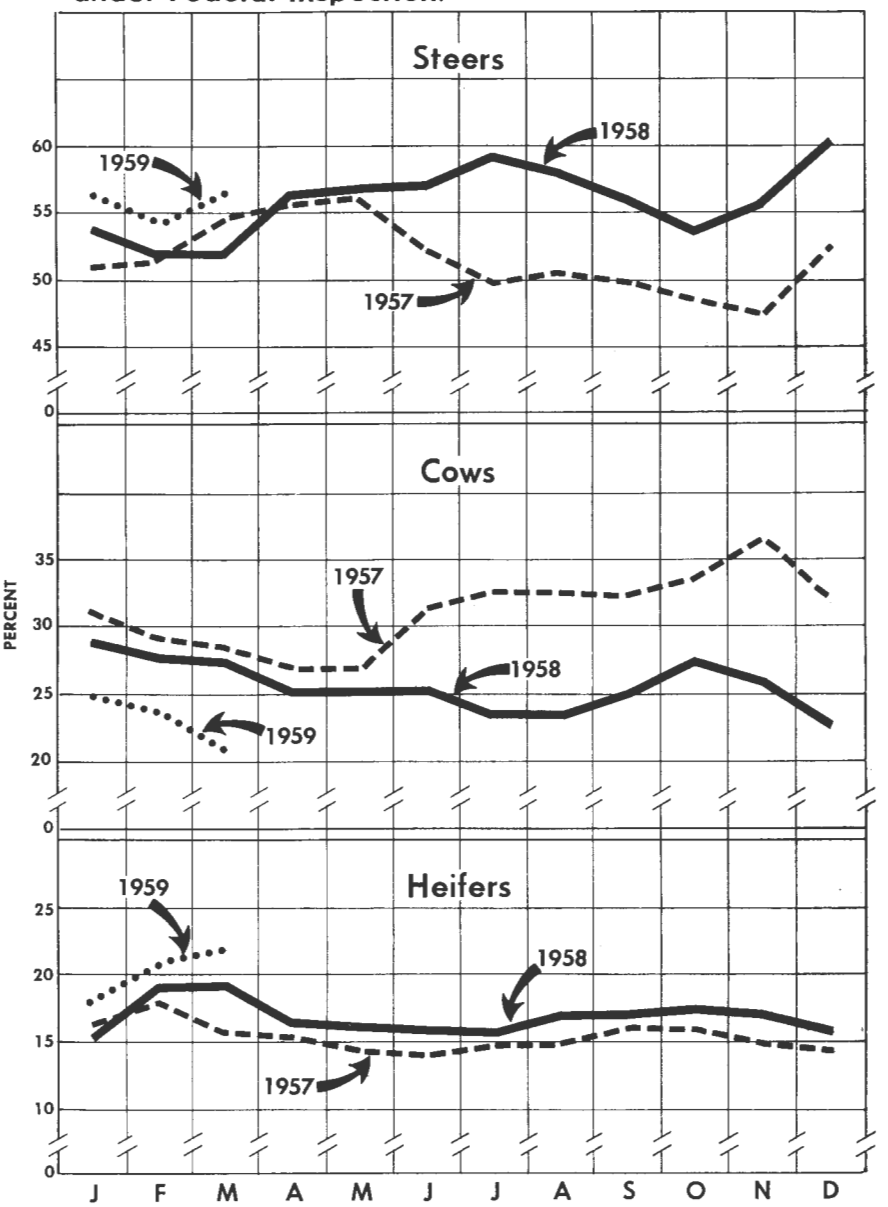
The USDA has made two alternative projections to show how much the difference in the rate of herd expansion could make in the beef supplies we'll have 5 years from now. In one projection, the rate of expansion in beef herds would slow down after this year. Cattle numbers, in this case, would be around 110 million in 1964. Of this, 55½ million would be cows.

This probably is about the slowest rate of expansion that we can expect if no severe drouth occurs in the next 5 years. Beef output would reach about 17 billion pounds in 1964. This would provide 90 pounds of beef for consumption per person—4½ pounds more than the record set back in 1956. Such a beef supply would bring a sizable reduction in cattle prices, particularly for cows and feeder cattle. But it might not be unmanageable as the demand for beef continues to grow with our rising national income.

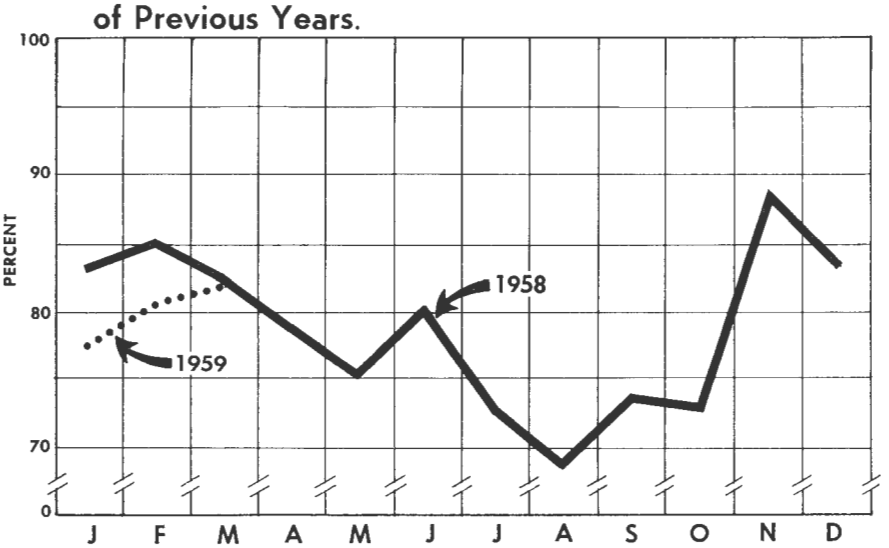
The second projection assumes a faster pace of increase—calling for another 4½ million head added during 1960 and 4 million more during 1961. The peak in numbers under this rate of increase would be about 115 million in 1964, including 58-59 million cows. This is 5 million more total cattle and a little over 3 million more cows than assumed under the slower rate of expansion.

Beef supplies in the immediate future wouldn't differ greatly under the faster rate of expansion than they would under the slower rate. But by 1964 the more rapid cattle buildup would lift beef supplies to 94½ pounds per person—4½ pounds more than under the

Steers, Cows and Heifers as Percentage of Slaughter under Federal Inspection.



Federally Inspected Calf Slaughter as Percentage of Previous Years.



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slower rate of expansion and 9 pounds more than we had in the previous record year of 1956.

A beef output of this size almost unquestionably would result in a demoralized cattle market and serious trouble for cattlemen.

Thus, the next 6-12 months could be critical ones in the longer-run cattle outlook! Much will depend on how much the rate of marketings from ranches drops and on the decision of whether or not to continue to hold back cows.

Beef production is increasing from an already high level. Cattle inventories fell only 3 million head in the short 2-year down phase of the cattle cycle. This was the smallest and shortest decline on record. And the productivity of America's cattle herds has increased steadily and probably will continue to do so.

So the clouds gathering on the horizon carry a warning of possible future trouble. But *for the immediate period ahead,* the climate prospects still are good.

Cattle feeding continues its steady growth. Marketings this summer and fall are expected to be around 8 percent larger than a year ago. Cattle went on feed earlier last fall. But the marketings are being dragged out as cattlemen feed their cattle to heavier weights.

If it weren't for the holding back of cows and other nonfed cattle, such marketings undoubtedly would seriously depress prices. They're not doing so because the market supply of cattle other than fed cattle is small.

Since the prospects are that marketings of other than fed cattle will remain small this year, 1959 fed cattle prices aren't likely to break drastically. They'll probably work lower during the summer and early fall when marketings are largest. The marketing pattern generally seems to be repeating that of 1958.

Meanwhile, with prospects for a good corn crop and generally satisfactory fed cattle prices, feeder cattle prices also are likely to remain strong. Cattle feeders were bidding the highest prices for feeder steers in late April since the spring of 1952.

Cattle feeding profits aren't as great this year as a year ago. But they're high enough to sustain interest in cattle feeding—particularly in view of bumper crop prospects.

The big uncertainty is in the short-run weather outlook. Unfavorable weather in the West could change the summer and fall picture considerably. There are definite areas of potential trouble —the Dakotas and Texas-New Mexico, for example.

Most of the potential drouth areas received spring rains. And, as spring ended, the supply of surface moisture was adequate. If the moisture situation should deteriorate again, however, the impact of changes in range conditions would be felt. A range feed shortage is felt more keenly with high numbers of cattle. And the greater potential supply of market cattle could cause any sizable marketings to bring about a snowball price decline.

But, barring bad weather, the *short-run outlook for cattle is good.* The *intermediate* cattle outlook is one of *caution.* And the *longer-run* outlook is one of *danger*—unless the rate of expansion of cattle breeding herds slows down.

Margin Between Slaughter Steers and Feeder Steers Bought 7 Months Earlier